Fall 2012

The Quarterly Hail

National Weather Service - Hastings, Nebraska

Volume 2, Issue 3

Notes From the Meteorologist In Charge

Most people would agree we enjoyed a beautiful spring, but that early heat continued to grow through the summer. Now we are living through a horrible drought. It is interesting how the weather can change so quickly and how our attitudes about weather change when it begins to hurt us physically and economically.

I am often asked, "Why is the National Weather Service associated with the Department of Commerce?" You must simply look at the results of the long term weather pattern over our nation the last six months to answer that question.

The answer is, weather directly affects or impacts over one third of the Gross National Product of our great nation. We are seeing it today. Experts are predicting rising food and energy costs because of record heat and drought that is destroying a huge portion of our crops. The large stagnant high pressure area that has remained anchored over the central U.S. for the summer is also keeping wind speeds low. Low wind speeds mean wind turbines are ineffective and thus, not producing energy. At the same time, we are consuming electricity at record rates to try to cool our houses and businesses. You can continue down this path of reasoning and you quickly find your pocket book will feel the sting of this drought for a long time to come in the future! Thus, I rest my case, that this agency does have a place in the Department of Commerce.

Of course, our main mission is the protection of life and property, but one way or another, the weather plays a daily role in almost every person's life.

With that, please stay cool and I hope the end to this drought is close at hand. Our best hope is for an active weather pattern this fall and winter. If that scenario happens, my staff will be worn out by next spring, but we will be putting the Drought of 2012 behind us! Even though it appears we will remain in this drought pattern through the summer, I sincerely pray, in years to come, we remember only the "Great Drought of 2012" not the "Great Drought of 2012 -2013"!

Steve Eddy
Meteorologist In Charge
National Weather Service - Hastings, Nebraska
steven.eddy@noaa.gov
402-462-2127 x642

Inside this issue:

Special Points of Interest:

- *Learn about how NWS Hastings is "Tweeting."*
- *How does the National Weather Service get graded?*
- *What are those clouds?*
- *El Nino? La Nina? What does that mean?*
- *Don't forget to come see us at the Nebraska State Fair!*

Employee Spotlight - Lead Forecaster Jeremy Wesely

Jeremy grew up in the small, southeast Nebraska town of Milford where he attended Milford Public Schools from kindergarten through his senior year of high school. He was always fascinated by the extreme Nebraska weather, from severe thunderstorms to full-fledged blizzards and from raging flash floods to extreme droughts. His desire to one day become a meteorologist began early in elementary school and grew with time eventually leading him to the University of Nebraska in Lincoln. Go Huskers! Jeremy worked his way through college with some of his most valuable formation gained during his years as a church custodian at Saint Thomas Aquinas Student Parish. He graduated with a Bachelors of Science in Meteorology in 2000.

Jeremy's first weather job was at Headquarters Air Force Weather Agency (HQ AFWA), Offutt Air Force Base, located in Bellevue, Nebraska. He was a civilian employee working in the Research and Development Branch of Air Force Weather. During this time he also had the privilege of serving as the president of the Omaha-Offutt American Meteorology Society. Jeremy's biggest project while at HQ AFWA was managing the effort to field a new Air Force dust storm forecast model. This project became an even higher priority at HQ AFWA following the attacks of September 11, 2001. Jeremy's work in helping to field this new dust storm forecast model was his cornerstone achievement that eventually led to being awarded the highest honor of his professional career, Senior Civilian of the Year HQ AFWA. What Jeremy misses most from his time at AFWA are the people, the highly trained and committed men and woman of the Air Force with whom he worked during the early days of the War on Terror.

In October of 2004, Jeremy was hired as a lead forecaster at the National Weather Service in Hastings. What Jeremy came to quickly realize is that there was never a dull moment as an operational forecaster. There are always new forecast challenges and no two weather patterns are ever exactly alike. Although Jeremy greatly enjoys the challenges of active weather patterns, he also looks forward to the quiet evening shifts where he can have an opportunity to turn his focus towards the riggers of managing his on-the-side program areas and catching up on the latest training. Jeremy is currently the hydrology program manager, which keeps him busy with all things related to our area rivers.

Jeremy has been married for a little over three years and with his wife is excited to welcome their second child's arrival around Labor Day. Jeremy's greatest joy is spending time with his family. He also enjoys the great outdoors including gardening, landscaping, hiking, canoeing, camping, and fishing. Jeremy is active in his church and his faith gives him a great sense of peace in a sometimes rather hectic world.

We Want to Hear from You!

Want to know how a tornado forms? Are you interested in how a rainbow is made? Or you just want more information about the Christmas Blizzard of 2009? Let us know!!

Every edition of The Quarterly Hail is published for you, our fans and customers. We want to write about things that ***YOU*** are interested in. Send us an email or drop us a line in the mail and let us know what you would like to see in each edition of The Quarterly Hail. Whether you are a weather fan like us, or just have a few weather questions you want answered, we want to hear from you! In future editions of The Quarterly Hail, we will try to provide articles that reflect the interests of our customers. We will choose customer questions to answer in the new Frequently Asked Questions section.

Even if you're not sure what you want to see in the newsletter, we appreciate any feedback! Let us know how we are doing. Did we have a typo in the last newsletter? Was the newsletter informative?

Send an email to Michael.Moritz@noaa.gov, write or call:

National Weather Service
6365 Osborne Drive West
Hastings, NE 68901
(402) 462-4287

Check Your Messages – The Weather is Calling!

Led by the Federal Emergency Management Agency (FEMA) and the nation's major wireless carriers, some of you will now receive special alert messages on your cell phones. Wireless Emergency Alerts (WEA) are short, 90-character text messages designed to notify you of a Presidential message, an imminent, potentially life threatening hazard, or Amber Alert. This nationwide service began on June 28, 2012. Here are a few answers to frequently asked questions about WEAs:

Do I have to sign-up to receive Wireless Emergency Alerts (WEA)?	If you have a WEA-enabled phone, you are automatically enrolled. The alert messages will not disrupt text, calls or data sessions that are in progress.
What weather related alerts are included?	1. Tornado Warnings 2. Flash Flood Warnings 3. Blizzard Warnings 4. Ice-Storm Warnings 5. Tsunami Warnings 6. Dust Storm Warnings 7. Extreme Wind Warnings (non-thunderstorm)
Will Severe Thunderstorm Warnings trigger alerts?	No.
Will I be charged for the alerts?	No. The alerts are free of cost for all subscribers.
What do I do after I receive a message?	The alert will contain a brief message about the impending hazard. You should seek more information and move to a safe place quickly.
What if I am traveling? Will I receive WEAs?	If your phone is WEA-capable, you will receive the message. Alerts are rebroadcast until the emergency situation has passed. The messages are broadcast to the geographic area covered by the cell tower.
Can I turn off Wireless Emergency Alerts?	Consumers may opt out of the Imminent Threat (i.e., weather) and Amber Alerts. Per the WARN Act of 1996, Congress said no consumer could opt out of Presidential Alerts.
Is my phone capable of receiving WEAs?	Not all phones will receive WEAs. At this time, only a handful of phones can receive WEAs, but going forward all phones will have the capability. The IPhone will have the capability with the release of OS6 in the fall of 2012.
I don't have a "smartphone". Will I receive WEAs?	The answer is "maybe". Some phones may receive updates from the provider making the capable of receiving WEAs. To confirm if you phone is capable of receiving WEAs; please check with your carrier.

For more information, contact your wireless carrier.

NWS Hastings Joins Twitter - *Joe Guerrero, Meteorological Intern*

Follow Social media has grown tremendously over the last several years, and it should not come as any surprise that the National Weather Service would jump onboard the Twitter train. For those that Tweet, you can follow us by searching for @NWSHastings, or going to www.weather.gov/hastings and clicking on the "Follow" button (like the one to the left) in the upper left hand corner. If you can't get enough of us on Twitter, don't forget we are also on Facebook (US National Weather Service Hastings).

For those unfamiliar with Twitter, it is much different than Facebook. The Twitter world moves much faster and there is less maintenance, but is not as in-depth as Facebook. For example, Twitter only allows a maximum of 160 characters per post, or in the Twitter world, a "tweet". We have a process of searching through the Twitter world for keywords within a tweet which may be of some relevance during active or severe weather. For example, if you tweet something that has the words, tornado, hail, or snow within a certain mile radius from a point we have designated, we will see your tweet, which may likely help us in the warning decision process. The more information we have, the better we can serve our customers.

It is amazing how much information is at our fingertips and hence why Twitter can potentially be very useful. We also have a couple important hash tags (or the symbol #) to keep in mind when tweeting, #newx for Nebraska weather, or #kswx for Kansas weather. A hash tag allows words to become searchable. These words (e.g. #newx) make it easier for people to find more information about a keyword. If you tweet something with those hash tags previously mentioned, our office will see the tweet and determine if this information is of relevance to our duties. Additionally, you may see hash tags such as, #noaa, #drought, #SPC, etc. If you want to share a photo of weather damage, hail, snow drifts, or other weather phenomena, that would also be appreciated.

"Geotagging" photos is very helpful because this gives us an exact location. Geotagging is the process of attaching your latitude and longitude to your Tweets via satellites. It all boils down to weather! Relaying pertinent information to the public is essential and could potentially help us with what we are here to do for Americans - save lives and property.

Cooperative Observer 30 Year Length of Service Award - *Mike Reed, HMT*

Mike Reed, Hydrometeorological Technician, presented Mr. Tom Klanecky with his 30 Year Length of Service award.

The National Weather Service proudly presented Mr. Tom Klanecky with the 30 Year Length of Service Award. Tom has been the official Cooperative Weather Observer for Ord, Nebraska, since 1982.

During his 30 years of data collection, he has measured over 773 inches (64 feet) of rain and 1056 inches (88 feet) of snow. The wettest year during this time frame was 2007, with 36.21 inches of rain, and the driest year was 2002 with 18.63 inches of rain. The winter with the heaviest snow was the winter of 1983-1984 with 76 inches of snow, contrasted by only 14 inches of snow during the winter of 1999-2000.

Tom faithfully measures and records the amount of precipitation that falls in a 24 hour period. The data measured is then transmitted electronically to the National Weather Service office in Hastings, where it is recorded. These reports are then used to support weather forecasts and warnings in addition to various climate reports made available to the public through various sources, including the internet. At the end of each month, the data is checked for quality control prior to submission to the national archiving center, located in Kentucky. Climate data is used in every aspect of our national economy, including insurance companies, agriculture, water resource industries, and manufacturing, as well as governmental agencies at local, state and federal levels. Thanks to the dedication of Mr. Klanecky, the climatic database for the Ord area continues to be built with reliable information provided by his reports.

Goals Aren't Just For Soccer! - *Mike Moritz, Warning Coordination Meteorologist*

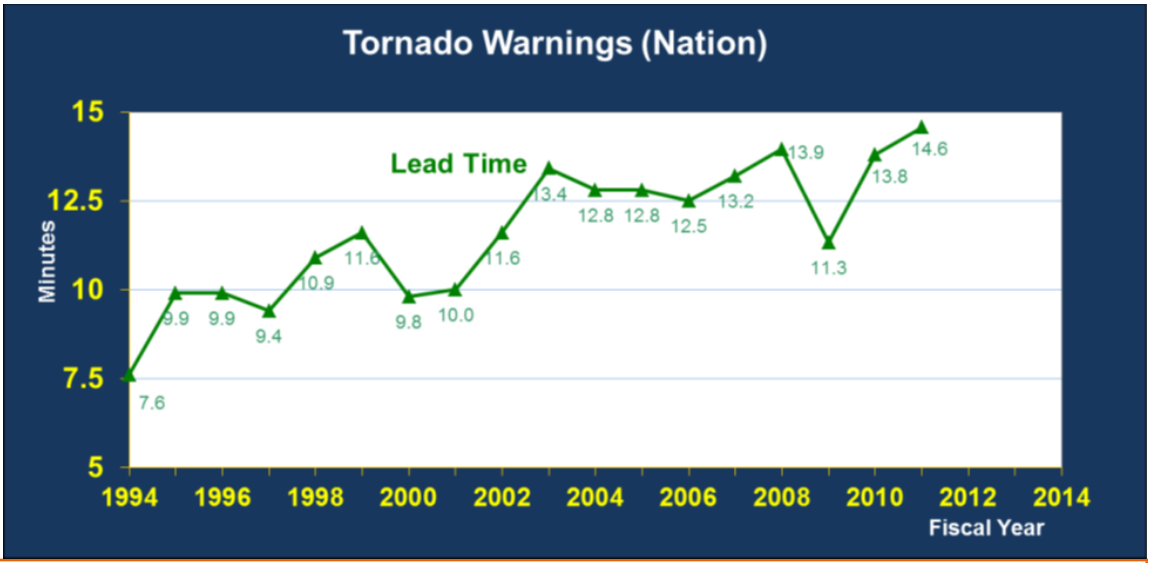
All of us at the National Weather Service (NWS) in Hastings have a pretty simple mission; issue timely and accurate advisory, watch and warning information for the protection of life and property. When severe weather strikes, the ENTIRE staff at NWS Hastings is focused on that goal. In an effort to track performance, the Government Performance and Results Act (GPRA) of 1993 was passed, and later enhanced by the GPRA Modernization ACT of 2010. The acronym GPRA is pronounced "Gip-Rah" for short GPRA goals are one of the primary methods for informing Congress of NWS progress and performance, which leads directly to funding priorities for the federal government.

GPRA goals are measured in various ways, including Severe and Tornado Warning Accuracy (%), False Alarm Rates (%), Lead Time (minutes or hours) and Track and Intensity Forecasts for Hurricanes. Measures are also tracked for Flash Floods, Marine and Aviation Forecasts, Precipitation (Day-1 forecast period) and Winter Storms. As with all statistical measures, they are not without fault. In recent years, the NWS is learning it isn't all about the numbers, but also about the "human" response, including warning message understanding and resultant actions during this period of exploding information sources and social media at our fingertips. Also, verification is not easy, especially in rural areas. Finally, just because there was "no report" of a particular severe weather event happening, doesn't mean it didn't happen, or the warning was a "bad" warning. All of these factors make evaluating warning and forecast performance a constant challenge.

Looking at statistical, goal oriented results can be confusing at times. With this mind, we will look at just two GPRA related goals and performance: National Lead Time for Tornadoes and National Winter Storm Warning Lead Time and Verification.

National Tornado Lead Time:

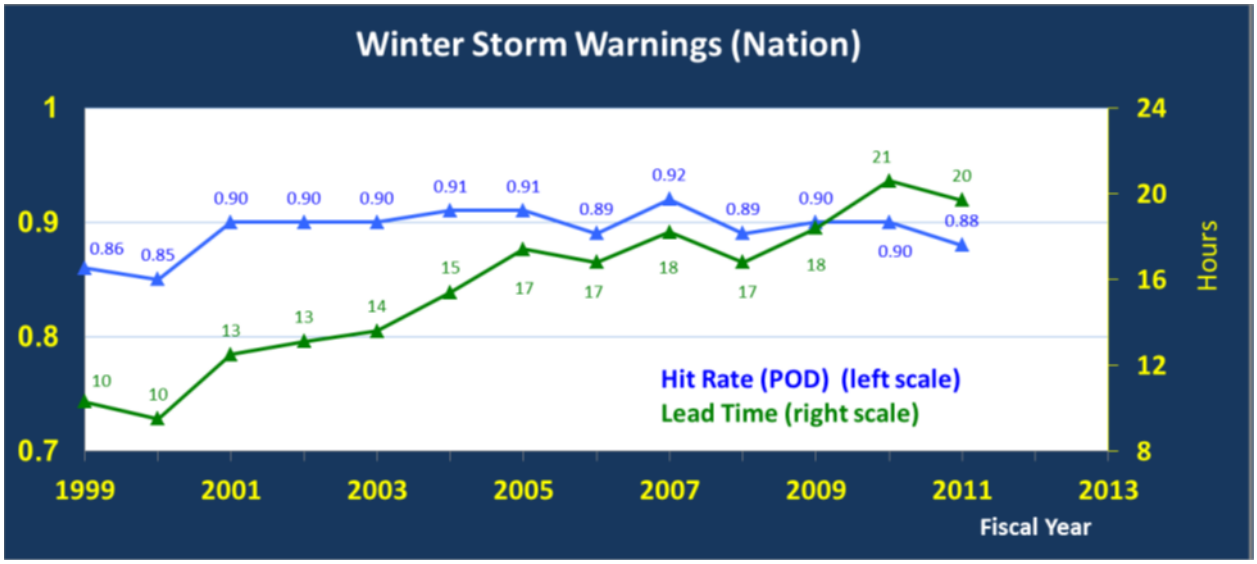
The image below depicts the changes in Tornado Warning lead time for the United States since 1994. Lead Time is considered the time (minutes) from when a Tornado Warning was issued until the time when a tornado was verified in the warning area. On the left, in 1994, the average lead time was 7.6 minutes. In other words, on average, we had 7.6 minutes of time between when the Tornado Warning was issued and when a tornado was actually verified in the warning area. By 2011, lead time had almost doubled to 14.6 minutes. Such a measure isn't perfect, and is strongly influenced by geography, but, as a whole, there has been a steady improvement in lead time before tornado events across the United States. For 2012, the NWS GPRA goal for Tornado Lead time is 13 minutes. Through April, the average lead time for all NWS tornado warnings was meeting the goal of 13 minutes.



Goals Aren't Just For Soccer! Continued...

National Winter Storm Verification and Lead Time:

The image below depicts average Lead Time (hours) and Probability of Detection across the United States since 1999. Through 2011, lead time has doubled from 10 hours to 20 hours. This means, on average in 2011, a particular area had about 20 hours of advanced warning before winter storm conditions actually started. The Probability of Detection or "POD" for short, measures our "hit or miss" of a particular event. The question answered is "Did we meet winter storm criteria or not?" In general, since 1999, when the NWS issues a Winter Storm Warning, winter storm conditions are met about 90% of the time. *The NWS GPRA goal for the winter of 2012-2013 is a lead time of 16 hours and a POD of 91%.*



Of course, winter storms are different than severe spring storms, and factors influencing them can be totally different (i.e. a winter storm in Nebraska is totally different than a winter storm in Alabama, but "a tornado is a tornado" wherever you are). None-the-less, statistics such as these provide good insight into job performance and areas to focus on trying to improve.

We are currently seeking Cooperative Weather Observers at Fairmont, Loup City, and Central City. These locations would record DAILY high and low temperatures as well as measure precipitation and snowfall. These measurements are used by numerous offices all across the country, not only for climate research but also for drought and flood information as well as agriculture services.

Observing is simple and so is reporting your observation. All you need to get started is the interest, a PC and internet access, we supply everything else. If you do not have a computer, another way to report your observation is through a menu driven phone system.

This is an excellent opportunity for anyone who is interested in the weather and who has a desire to observe and report weather conditions. So if you or someone you know is interested in making history by reporting weather conditions, please contact us!

For more information, contact Marla by email (marla.doxey@noaa.gov) or by phone (402) 462-2127 ext. 327

Do You Know Your Clouds? - *Briona Saltzman, Meteorologist Intern*

The cloud classification system most well known today was developed by British Chemist Luke Howard in 1803. This system is widely known for its use of Latin terms to convey the characteristics of each cloud.

Clouds are classified according to their height above and appearance (texture) from the ground.

The cloud roots and translations that summarize the components of this classification system are to the right.

1) **Cirro**: curl of hair, high
2) **Alto**: mid
3) **Strato**: layer
4) **Nimbo**: rain, precipitation
5) **Cumulo**: heap

High-level clouds

High-level clouds occur above about 20,000 feet and are given the prefix "cirro-". Due to cold tropospheric temperatures at these levels, the clouds primarily are composed of ice crystals, and often appear thin, streaky, and white (although a low sun angle, e.g., near sunset, can create an array of color on the clouds). The three main types of high clouds are cirrus, cirrostratus, and cirrocumulus.

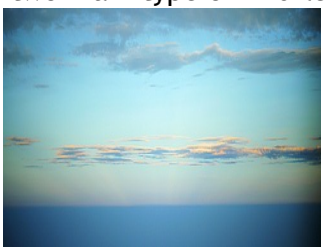
Cirrus clouds are wispy, feathery, and composed entirely of ice crystals. They often are the first sign of an approaching front or upper-level jet streak.

Unlike cirrus, **cirrostratus clouds** form more of a widespread, veil-like layer (similar to what stratus clouds do in low levels). When sunlight or moonlight passes through the hexagonal-shaped ice crystals of cirrostratus clouds, the light is dispersed or refracted (similar to light passing through a prism) in such a way that a familiar ring or halo may form. As a front approaches, cirrus clouds tend to thicken into cirrostratus, which may, in turn, thicken and lower into altostratus, stratus, and even nimbostratus.

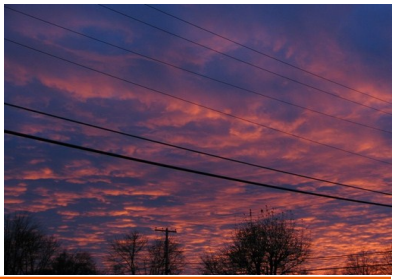
Finally, **cirrocumulus clouds** are layered clouds permeated with small cumuliform lumpiness. They also may line up in streets or rows of clouds across the sky denoting localized areas of ascent (cloud axes) and descent (cloud-free channels).

Mid-level clouds

The bases of clouds in the middle level of the troposphere, given the prefix "alto-", appear between 6,500 and 20,000 feet. Depending on the altitude, time of year, and vertical temperature structure of the troposphere, these clouds may be composed of liquid water droplets, ice crystals, or a combination of the two, including supercooled droplets (i.e., liquid droplets whose temperatures are below freezing). The two main type of mid-level clouds are altostratus and altocumulus.



Altostratus clouds are "strato" type clouds that possess a flat and uniform type texture in the mid levels. They frequently indicate the approach of a front and may thicken and lower into stratus, then nimbostratus resulting in rain or snow. However, altostratus clouds themselves do not produce significant precipitation at the surface, although sprinkles or occasionally light showers may occur from a thick alto-stratus deck.



Altocumulus clouds exhibit "cumulo" type characteristics in mid levels, i.e., heap-like clouds with convective elements. Like cirrocumulus, altocumulus may align in rows or streets of clouds, with cloud axes indicating localized areas of ascending, moist air, and clear zones between rows suggesting locally descending, drier air. Altocumulus clouds with some vertical extent may denote the presence of elevated instability, especially in the morning, which could become boundary-layer based and be released into deep convection during the afternoon or evening.

Cloud Classification Continued...

Low-level clouds

Low-level clouds are not given a prefix, although their names are derived from "strato-" or "cumulo-", depending on their characteristics. Low clouds occur below 6,500 feet, and normally consist of liquid water droplets or even supercooled droplets, except during cold winter storms when ice crystals (and snow) comprise much of the clouds. The two main types of low clouds include stratus, which develop horizontally, and cumulus, which develop vertically.

Stratus clouds are uniform and flat, producing a gray layer of cloud cover which may be precipitation-free or may cause periods of light precipitation or drizzle. Low stratus decks are common in winter in the Ohio Valley, especially behind a storm system when cold, dismal, gray weather can linger for several hours or even a day or two.

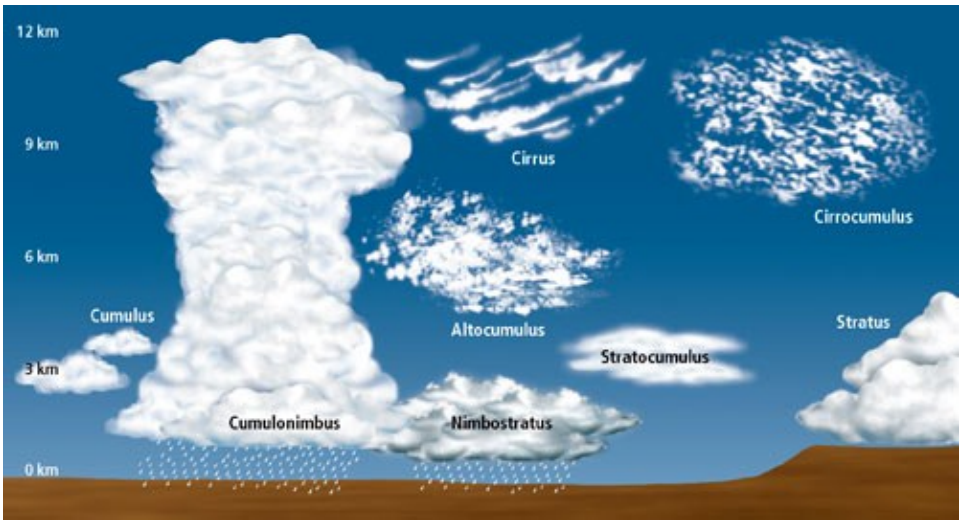
Stratocumulus clouds are hybrids of layered stratus and cellular cumulus, i.e., individual cloud elements, characteristic of cumulo type clouds, clumped together in a continuous distribution, characteristic of strato type clouds. Stratocumulus also can be thought of as a layer of cloud clumps with thick and thin areas. These clouds appear frequently in the atmosphere, either ahead of or behind a frontal system.

Nimbostratus clouds are generally thick, dense stratus or stratocumulus clouds producing steady rain or snow. In contrast to layered, horizontal stratus, cumulus clouds are more cellular (individual) in nature, have flat bottoms and rounded tops, and grow vertically. In fact, their name depends on the degree of vertical development. For instance, scattered cumulus clouds showing little vertical growth on an otherwise sunny day used to be termed "cumulus humilis" or "fair weather cumulus," although normally they simply are referred to just as cumulus or flat cumulus.

A **cumulus cloud** that exhibits significant vertical development (but is not yet a thunderstorm) is called cumulus congestus or towering cumulus. If enough atmospheric instability, moisture, and lift are present, then strong updrafts can develop in the cumulus cloud leading to a mature, deep cumulonimbus cloud, i.e., a thunderstorm producing heavy rain. In addition, cloud electrification occurs within cumulonimbus clouds due to many collisions between charged water droplet, graupel (ice-water mix), and ice crystal particles, resulting in lightning and thunder.

There are a few different variations to the basic cloud classification, including but not limited to a wall cloud, shelf cloud, mammatus, fog, and funnel cloud.

The photo to the right depicts several of the cloud types and their respective locations within the atmosphere.



How and Why We Verify Our Forecasts - *Merl Heinlein, Lead Forecaster*

Meteorology is a science, and part of the scientific process in meteorology is to verify not only our forecast compared to what actually occurred (truth), but also to verify how numerical model forecasts have been performing. Verification is used for continuing improvement of our forecasts.

Verification can be separated into different types, categories and components, taking into account, but not limited to, data such as maximum and minimum temperatures, dew points, wind speeds, probability of precipitation (POP), and also temporal performance (e.g. what worked best for Day 1 vs. Day 7 forecasts). Verification is also done for our warnings (e.g. Severe Thunderstorm Warnings, Tornado Warnings, Blizzard Warnings, etc.)

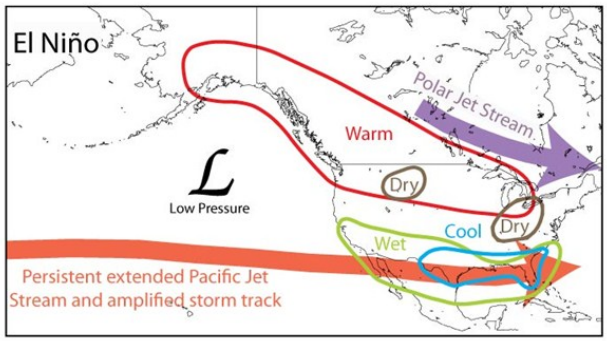
We have more numerical models, combinations of models, and models corrected for bias than ever before. This sounds great, right? But with so many tools available, this can lead to data overload for the forecaster. The forecaster must determine which numerical model (if any) will likely work best for a particular day, a particular night, and for a particular meteorological field (e.g. temperature, chance of rain, etc.). This must all be done in a relatively short period of time so that we can get the latest and freshest forecast out to our customers. This is when the statistics of verification come into play. For example, we have been stuck in a particularly hot and dry pattern over the course of most of the summer. If a pattern hasn't changed very much over a fairly lengthy amount of time, then bias corrected models are generally a good bet for temperatures. These models "look" back at previous data and compare these to numerical model performance, then a correction is made (hence, "bias corrected"). There is even a tool that we can use to see how well these bias corrected models are performing, as well as how other models, and also how we are performing.

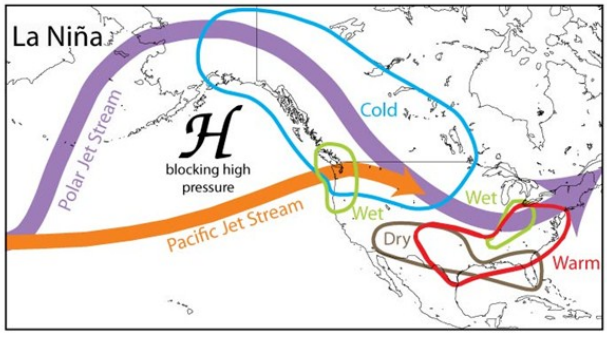
As one of the forecasters and the verification focal point, I am looking at model verification data often. If a particular model seems to be doing well or perhaps not so well, I will notify the other forecasters to let them know of a general trend. For example, one particular model this summer held a cool bias for maximum daily temperatures and a warm bias for dew points. Relaying this information to forecasters is helpful in our quest for accurate forecasts.

Verification of forecast performance is a useful tool and will continue to help forecasters improve our skill and accuracy. The future of forecasting will always depend, in part, to verification.

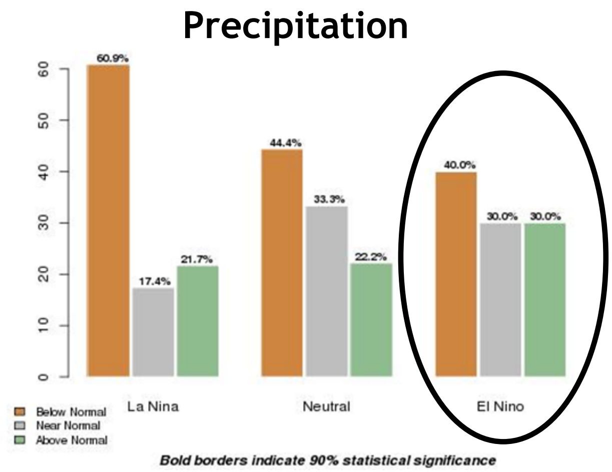
El Nino Watch – *Shawn Rossi, Lead Forecaster*

The latest update on the ENSO cycle issued by NOAA's Climate Prediction (CPC) on August 13th, 2012, calls for El Niño conditions to develop across the tropical Pacific Ocean later this month or during the month of September. El Niño conditions are indicative of a temperature anomaly of 0.5°C or greater above the long term average across the tropical Pacific for a period of 3 months or longer. While this anomaly may seem small, El Niño conditions have been linked to impact weather extremes around the world by influencing the position of both the Pacific and Polar Jet Streams. The intensity of El Niño events generally peak during the winter months, when they also tend to have the greatest effect on weather and precipitation across North America. La Niña occurs when the temperature anomaly in the tropical Pacific Ocean is cooler than normal. The typical impacts of El Nino (top) and La Nina (bottom) can be see to the right.

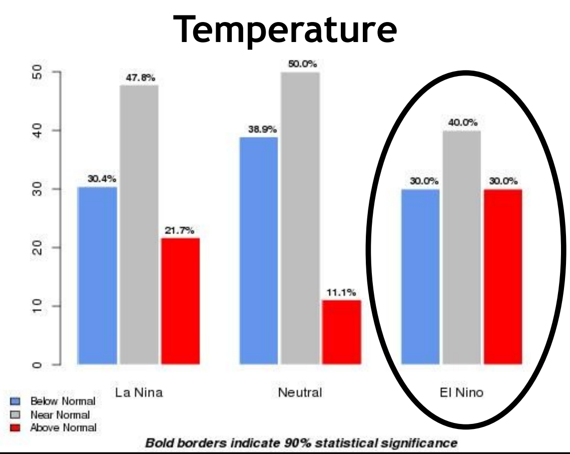




El Nino Watch Continued...



With known impacts on worldwide weather, it is not surprising that the ENSO phase (El Niño or La Niña) plays a large role in the 3 month and longer time frame climate outlooks. So with this in mind, what might the local area expect late this fall and upcoming winter if El Niño conditions do develop? In general, with the Pacific Jet expected to focus across the southern states under El Niño conditions, one can expect an increased chance for warmer than normal temperatures with pockets of dry weather across the northern states, and increased chances for cooler than normal temperatures and wetter conditions across the southern states. Focusing locally, however, both south central Nebraska and north central Kansas lie very close to the transition zone of these two more extreme patterns, and hence there is less predictability from the ENSO phase across our local area. Looking specifically across south central Nebraska and north central Kansas during El Niño years, composite analysis of previous ENSO events gives very little hint at what to expect during El Niño falls/winters. Analysis of these composite plots reveals there are almost equal chances of near normal, below normal and above normal temperatures and precipitation across the local area, with no statistical significant of one outcome over the other. Hence, while we would like to say that relief to the current drought can be expected this fall/winter, unfortunately atmospheric conditions at this point give no strong indicator either way, so we will just have to wait it out.



Weather Brain Teaser!

Can you solve our puzzle?

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
6				3				22						24						16					

_ O _ ' _   _ _ O _ _   _ _ E   _ E A _ _ E _ .   I _
11 24 9 ' 17   14 9 24 25 14   17 8 3   15 3 6 17 8 3 23 .   22 1

I _   _ I _ _ ' _   _ _ A _ _ E   O _ _ E   I _   A
22 17   11 22 11 9 ' 17   25 8 6 9 2 3   24 9 25 3   22 9   6

_ _ I _ E ,   _ I _ E   O U _   O _   _ E _   _ E O _ _ E
15 8 22 18 3 ,   9 22 9 3   24 16 17   24 1   17 3 9   20 3 24 20 18 3

_ O U _ _ _ ' _   _ _ A _ _   A   _ O _ _ E _ _ A _ I O _ .
25 24 16 18 11 9 ' 17   10 17 6 23 17   6   25 24 9 7 3 23 10 6 17 22 24 9 .

Answer on page 11.

Quote by Kin Hubbard

Come See Us!

The Hastings National Weather Service Office will once again be hosting a booth at the 2012 Nebraska State Fair in Grand Island, Nebraska, from *August 24th - September 3rd*!

Our booth will feature a Van de Graff generator ("lightning ball"), live radar, giveaways, drawings and information about weather safety. You can probably pick up a Tootsie Roll or two. The booth will be located on the southwest corner of the Exhibition Building on site Q112, or in the same spot as last year. We look forward to seeing you and saying "hello."

This Table Reveals Some Numbers On How Dry/Hot It Has Been This Year...

	Total Precipitation This Year (Jan. 1-Aug. 16)	Departure From Normal Precip. This Year (Jan. 1-Aug. 16)	Percentage of Normal Precip. This Year (Jan. 1-Aug. 16)	Average Daily Max Temp This Summer (Jun. 1-Jul. 31)	Departure From Normal Max Temps (Jun. 1-Jul. 31)
Grand Island	7.68"	-11.70"	39%	92.3˚	+6.9˚
Hastings	14.76"	-4.07"	78%	90.4˚	+5.1˚
Kearney	11.40"	-6.72"	62%	90.2˚	+5.9˚
Ord	10.85"	-6.58"	62%	92.5˚	+8.3˚
Holdrege	13.28"	-6.48"	67%	89.8˚	+5.2˚
Alton KS	9.40"	-9.10"	51%	98.7˚	+9.7˚
Smith Center KS	9.95"	-8.42"	54%	97.3˚	+7.2˚

Fall Climate Outlook Detailed Below...

The latest Fall Outlook from the Climate Prediction Center slightly favors above normal temperatures, but assigns equal chances of above normal, below normal, or near normal precipitation to South Central Nebraska and North Central Kansas.

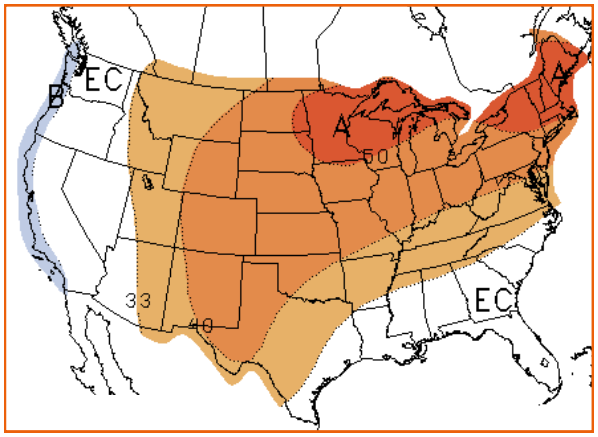
Time Frame: The NWS considers the "Fall" season to be all of September, October and November.

Temperature: The outlook on the right reflects a forecast for the *3-month period as a whole*. We tend to view temperatures in the context of a daily or monthly average, but the 3-month outlook accounts for the entire season. Red/Orange colors represent "warmer" than normal and Blue colors represent "cooler" than normal. The white area labeled "EC" designates regions with Equal Chances of having above, near or below normal temperatures. This means there is no clear trend in the forecast analysis to support one of these outcomes over another. As the image shows, the fall forecast for South Central Nebraska and North Central Kansas slightly favors above normal temperatures with a 40% chance of being above normal, versus a 27% chance of below normal and a 33% chance of near normal. However, the outlook doesn't indicate *how much* above normal the seasonal temperature might be.

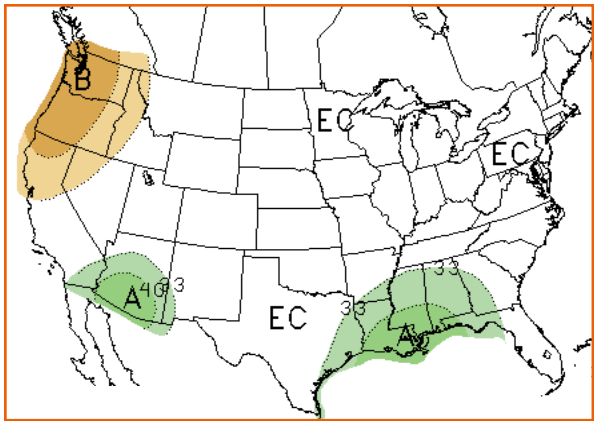
Precipitation: Similar to temperatures, the precipitation outlook depicts the precipitation forecast for the entire 3-month period, and is independent of individual days or months. Green colors represent "wetter" than normal and brown colors represent "drier" than normal. The white "Equal Chances" area is also present and covers the majority of the nation, including the local area. This reflects equal chances of experiencing above, near or below normal precipitation. Again, this outlook does not forecast *how much* above (or below) normal precipitation might be.

To recap, the outlook for Fall 2012 (Sep.-Oct.-Nov.) slightly favors above normal temperatures, with equal chances of above, near or below normal precipitation.

Temperature Outlook for Fall 2012 (September-November)



Precipitation Outlook for Fall 2012 (September-November)



To view these and other Climate Prediction Center outlooks visit ***http://www.cpc.ncep.noaa.gov/***

Answer to Weather Brain Teaser: Don't knock the weather. If it didn't change once in a while, nine out of ten people couldn't start a conversation.

National Weather Service

Weather Forecast Office
6365 Osborne Drive West
Hastings, NE 68901

Phone: 402-462-2127
Website: www.weather.gov/hastings
E-mail: w-gid.webmaster@noaa.gov

Meet the Rest of the Staff at WFO Hastings

Meteorologist-In-Charge

Steve Eddy

Warning Coordination Meteorologist

Mike Moritz

Science and Operations Officer

Rick Ewald

Data Acquisition Program Manager

Marla Doxey

Electronic Systems Analyst

Mark Fairchild

Information Technology Officer

Carol Cartier

Administrative Assistant

Victor Schoenhals

Electronics Technician

Mike Bergmann

Meteorological Intern / Hydrometeorological Technicians

Briona Saltzman ● Joe Guerrero / Mike Reed ● Phil Beda

Lead Forecasters

Merl Heinlein ● Jeremy Wesely ● Cindy Fay

Shawn Rossi ● Scott Bryant

General Forecasters

Julia Berg ● Angela Oder

Ryan Pfannkuch ● Vacant